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ABSTRACT

The concept of metacognition involves two processes: an awareness of certain skills--strategies and resources that are needed to perform a task effectively--and the ability to use self-regulatory mechanisms to ensure the successful completion of the given task. A review of the literature suggests that (1) metacognitive development differs among all levels of readers and all age groups; (2) metacognition tends to improve with age and develops more adequately with proper instruction; (3) adult/college level students seem to demonstrate some of the metacognitive skills but may possess deficiencies; (4) adult/college level students may be the most successful trainees for metacognitive instruction because they seem to be more aware and capable of self-monitoring while reading than younger students are; and (5) some of the specific strategies to aid text mastery are skimming, scanning, notetaking, summarizing, previewing, outlining, signal words, selective questioning, and cloze procedure. Each of these strategies requires specific steps for application. Use of metacognitive strategies by college and adult readers is essential and should be introduced to college students through direct instruction and practice. (Included is a chart that lists each of the nine metacognitive strategies and the steps needed to apply them.) (HOD)

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Metacognition: Theory and Application for College Readers

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METACOGNITION: THEORY AND APPLICATION FOR COLLEGE READERS

RESEARCH AND THEORY

The Concept of Metacognition involves two cognitive processes. According to Baker (1982), metacognition involves (1) an awareness of certain skills, strategies and resources that are needed to perform a task effectively; and (2) the ability to use self-regulatory mechanisms to ensure the successful completion of the given task. When metacognition is related to reading it means that the reader is capable of selecting skills and strategies suitable for the requirements of the reading task.

Recent emphasis on metacognitive activities has stressed monitoring one's comprehension progress and applying the right strategies if comprehension progress is not occurring properly. In addition, metacognition is believed to have a significant relationship to text understanding, and thus requires that educators use the most effective metacognitive teaching techniques to aid students in comprehension skill development.

In the past, educators such as Huey, Thorndike, and Gray have, in various phraseology, referred to "metacognitive constructs," as reasoning and thinking. In the 1950's and 1960's, educators talked in terms of theoretical models and reading behavior rather than of systematic instructional techniques. For example, many teachers in elementary schools did not involve children very often in such metacognitive activities as interpreting text information or understanding text meaning. Less emphasis on text interpretation and monitoring has been directly related to the behaviorism period that existed from the 1940's through the 1960's. During that time, more emphasis was placed on facts and details. Skill hierarchies, which contained questions devoted to text details, and workbook exercises that stressed drill and practice, were emphasized. More recently there has been a return

to the study of thinking, reasoning, and reflection. This may explain why there is now so much interest in metacognition.

Metacognitive Categories: McNeil (1984) divided metacognition into the three major areas of Self-Knowledge, Task-Knowledge and Self-Monitoring.

Self-Knowledge requires the reader to be able to recognize his/her own strengths and weaknesses in comprehending text material. The successful reader deals with comprehension failure through self-monitoring, self-instruction and reanalysis of the reading task.

Task-Knowledge is being cognizant of the comprehensive strategy and realizing its significant. The learner employs broad controlling strategies, such as self-instruction, question recognition, and reading to remember. Students can be asked to state what they are doing and why.

EXAMPLE

Teacher: What is it that we have been doing before we read each story?

Students: We talk about our lives and our experiences with some of the ideas that are in the story, and they we predict what will happen in the story.

Teacher: Why do we compare our experiences with the ideas given in the story?

Students: The comparison will help us understand the story.

In Self-Instruction, the learner employs self-interrogation, verbal monitoring, or thinking aloud. These steps aid the learner in becoming conscious in the cognitive processes.

EXAMPLE

Learner asks: What is it I have to do? (Problem is defined)

Answer: I have to identify the topic sentence of the paragraph. Focus attention) the topic sentence is what the paragraph is about. I start

by looking for a sentence that sums up the details or tells what the paragraph is about. (Plan of action)

I haven't found it. (Evaluation)

That's alright. (Encouragement)

The topic sentence might be a definition or a combination of a question and answer (Revision)

I'll try my new plan again. (Coping)

The teacher assist in developing metacognitive skills by modeling. He/she talks aloud while tackling a reading task. Next, the students think through the task, and finally practice is given with different types of material. Specific comprehension tasks are also assigned, such as finding the supporting evidence for a generalization, locating specific information, inferring tone or mood and drawing a conclusion. Students are encouraged to consistently use the components of defining the problem, focusing attention, taking action, evaluating, and coping.

The third category, Self-Monitoring is simply being aware of not understanding and knowing what to do when this occurs. The ability to self-check and correct relates to good reading.

Baker (1979) and Brown (1981) identified specific areas that are critical to effective reading and are the areas of deficiency among young children, learning disabled students, and poor readers. They are:

1. Understanding the purpose of reading;
2. Modifying reading strategies for different purposes;
3. Considering how new information relates to what is already known;
4. Evaluating text for clarity, completeness and consistency;
5. Dealing with failure to understand;
6. Identifying the important information in a passage, and
7. Deciding how well material has been understood.

Younger students and poor readers tended to concentrate on decoding words more so than attempting to understand text meaning (Moore and Kirby), 1981). They differed in knowledge of strategies for gaining meaning from text and in their ability to regulate strategies when encountering difficulties. Also, young readers were less efficient in monitoring and correcting strategies. When asked to rate certainty of response to a comprehension question, older readers performed better than younger readers.

With cloze, younger and poor readers did not use subsequent material in a passage to assist them in making corrections. Good readers, however, maximized their use of context clues and adjusted their reading to fit the purpose.

Adult learners also may lack metacognitive skills. Gambrell and Heathington (1981) conducted a study with 28 adult poor readers and 28 adult good readers. The following was revealed concerning poor readers:

1. They lacked sensitivity to both task and strategy dimensions;
2. They reported fewer strategies;
3. They had more misconceptions about such strategies;
4. They were not as aware of how and when to use them;
5. They had less understanding of textual elements, for example only 43% knew that a paragraph or story had order compared to 93% of the good readers who knew this;
6. Only 21% gave a meaning centered response when asked about the purpose for reading compared to 79% of good readers, and
7. Only one third were able to tell what they would do if they did not know a word.

The adult poor readers viewed reading more as a decoding process than one of comprehending. They thought it was easier to read word for word than for general

meaning. Also, reading aloud was perceived to be more effective than silent reading. The appeared to be unaware of independent, internally generated strategies and of fully comprehending the reading process just as some younger readers were unable to do.

The extent to which one knows and uses metacognitive strategies has proven helpful in another way. In a study by Hare and Pulliam, (1980) it was found that college students' metacognitive behavior could be used to predict their reading achievement scores. Students in this study were asked to introspect about their behavior as they read an expository article. It was discovered that those students most actively involved in their reading achieved the highest scores.

In the study on summarizing text material, Brown and Smiley (1977) found that the learners must also be able to identify levels of importance of instruction in text material. College readers were able not only to select the most important idea from studied prose passages, but they understood more fully the relative importance of textual information when compared to younger readers. It was also observed that self-questioning aids metacognitive monitoring and was used by sophisticated readers.

In general, the literature suggests:

1. Metacognitive development differs among all levels of readers and all age groups.
2. Metacognition tends to improve with age and develops more adequately with proper instruction.
3. Adult/college level students seem to demonstrate some of the metacognitive skills but may possess deficiencies. The study by Brown and Smiley on Summarizing was one such example.
4. Adult/college level students may be the most successful trainees for metacognitive instruction because they seem to be more aware and capable of self-monitoring while reading than younger students are.

METACOGNITIVE STRATEGIES TO ENHANCE READING COMPREHENSION FOR COLLEGE READERS

Strategy	Structured Skimming	Scanning	Notetaking
Principle	Reading through material rapidly, selectively and in a structured way to locate information.	Locating specific and predetermined information or facts as rapidly as possible.	Listing key ideas or facts for study.
Application	1. Read questions for the assigned reading material. 2. Read first and last paragraphs. 3. Read first and last sentence of all other paragraphs. 4. Answer questions. 5. Locate key words in the text. (Adapted from Sheinker & Sheinker p. 2, Study Strategies: A Metacognitive Approach)	1. Clarify specific information sought. 2. Establish parameters. 3. Scan text for answers.	1. Read textbook chapter. 2. Recognize key points from dark or bold print, italics, numbered items or use of asterisks. 3. Write main ideas. 4. Include some supporting details. (see Sheinker & Sheinker)

Strategy	Summarizing	Previewing	Outlining
Principle	Condensing information into a brief paragraph containing the key points.	Surveying printed material before thorough reading.	Organizing information into topics and related items.
Application	1. Skim a passage. 2. List key points. 3. Combine key points into a single paragraph. 4. Reread list. 5. Condense key points into a one-sentence summary. 6. Reread key points. 7. Select from the list provided the title that best reflects the main idea of the passage. 8. Write your own title for the selection. (See Sheinker & Sheinker)	1. Survey the text to gain an idea of the amount of reading time needed. 2. Preview the text to get clues about the content. 3. Locate main ideas and supporting details. 4. Skim for concluding statements or summaries.	1. Skim text. 2. Take notes. 3. Underline items in dark print, bold letters and all subheadings. 4. Use Roman Numerals to indicate key points. 5. Use capital letters to indicate supporting details. 6. Combine or reduce similar items. 7. Renumber and reletter. 8. Recopy final outline. (See Sheinker & Sheinker)

METACOGNITIVE STRATEGIES TO ENHANCE READING COMPREHENSION

Strategy	Signal Words	Selective Questioning	Cloze Procedure
Principle	Recognizing words that further clarify the author's intent.	Preparing selective questions as a guide to more thorough reading.	Bringing closure to a written passage by predicting the exact or an acceptable response for the deleted term.
Application	1. Recognize words that signal more of the same such as, furthermore, likewise, and also. 2. Recognize words that change the direction of thought such as, although, on the contrary and otherwise. 3. Recognize words that summarize or conclude such as, therefore, finally, and thus. 4. Recognize words that establish order such as, first, second, last, and before. 5. Recognize words of cause and effect such as, because, consequently and so.	1. Develop questions from chapter titles and subtitles. 2. Define italicized words using context clues. 3. Question the author's intent 4. Anticipate test questions. 5. Identify main ideas and supporting details.	1. Predict the exact word deleted from the cloze passage. 2. Suggest synonyms for the deleted words in the cloze passage. 3. Select the correct word from the list of deleted vocabulary terms. Preparation of a Modified Cloze Passage 1. Select a passage of approximately 250 words. 2. Make a list of vocabulary words selected from the written passage. Present vocabulary words before assigning the cloze exercise. 3. Leave the first sentence intact. 4. Beginning with the second sentence, delete every Nth* word and replace each deleted word with a blank. 5. Leave the last sentence intact at the end of the cloze passage. * Nth represents the fifth or eighth word deleted.

5. Some specific strategies to aid text mastery are skimming, outlining, notetaking, and summarizing.

APPLICATION

The preceding chart presents structured skimming, scanning, notetaking, summarizing, previewing, outlining, signal words, selective questioning, and cloze procedure as selected metacognitive strategies designed to enhance reading comprehension for college students. Each of the nine metacognitive strategies is presented with specific steps to apply the strategy.

The ability to employ appropriate strategies and monitor their use is an important part of reading. Widespread attention has been given to the notion that students should play an active role in the selection of strategies and in monitoring their performance.

When students Self-Monitor, they should be aware of not understanding, and they should know what to do when this occurs during reading. For example, a beneficial activity in this regard has been with summarization strategies. Research with college level students by Brown and Day (1983) indicates that while skilled students may successfully use summarization, remedial college students may find it difficult, and improvement only with the most explicit instruction. When the summarizing strategy is used the eight step format presented below is recommended.

Step 1. Skim A Passage

Step 2. List Key Points

Step 3. Combine Key Points Into A Single Paragraph

Step 4. Reread List

Step 5. Condense Key Points Into A One-Sentence Summary

Step 6. Reread Key Points

Step 7. Select From The List Provided The Title That Best Reflects The Main Idea Of The Passage

Step 8. Write Your Own Title For The Selection

The eight steps for summarizing just reviewed represent a suggested strategy for helping students improve their reading comprehension. It is recommended that these steps be taught to college students through direct instruction and practice. Opportunities should be provided that afford students meaningful and purposeful on-going activities for utilizing the rules associated with each step. Many students, however, may not need to go beyond Step 5. Steps 6, 7, and 8 provide additional practice if needed. Paramount in this process, is the students' ability to monitor their own use of the strategies.

SUMMARY

Reading comprehension is both a subconscious and conscious act. As readers become more cognizant of the processes involved, they can apply appropriate cognitive strategies for textbook understanding and summarizing. Implementing appropriate cognitive strategies is referred to as Metacognition.

This article reviewed the research, theory, and application strategies specifically related to metacognitive strategies useful for the college reader. Three metacognitive categories were reviewed. They were Self-Knowledge, Task-Knowledge and Self-Monitoring.

Self-Knowledge requires the reader to recognize his/her own strengths and weaknesses in comprehending test material, and deal with comprehension failure through self-monitoring, self-instruction, and reanalysis of the reading task.

Task-Knowledge requires cognizance of a comprehension strategy and the realization of its significance.

The third category of Self-Monitoring employs self-interrogation, verbal monitoring, or thinking aloud.

Studies indicate that college and adult learners may lack proficiency in

metacognitive skills. Use of metacognitive strategies by college and adult readers is essential and should be employed when reading. For example, the study by Gambell and Heathington (1981) with adult good and poor readers indicated that 96% of the good readers knew that a paragraph or story had structure. By contrast, only 43% of the poor readers were able to relate this.

The teaching of metacognitive strategies has increased potential as research continues to unfold providing insights into the cognitive processes that are important for successful reading.

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